REMARKS

The Office Action dated March 28, 2005, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 22, 32 and 33-36 are amended to more particularly point out and distinctively claim the subject matter of the invention. No new matter is added, and no further consideration and/or search is needed. Claims 1-37 are pending in the present application and are submitted for consideration.

Applicant wishes to acknowledge with appreciation the courtesy extended to Applicant's representative in the personal interview conducted on June 8, 2005.

Claims 1-3, 15-18 and 34 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent No. 6,496,476 (Badt, Jr. et al.). The Office Action took the position that Badt taught all the elements of claims 1-3, 15-18 and 34. Applicant respectfully submits that Badt fails to disclose or suggest all the features of any of the presently pending claims.

Claim 1, upon which claims 2-3, 15-18 and 34 are dependant, is directed to a method for establishing a protection path for a failed link between first and second nodes in a mesh network. A transfer of information from the first node to the second node is disrupted by the failed link. The method includes establishing an alternate path from the second node to the first node via a destination-to-source communication channel. The destination-to-source communication channel is established through at least one alternate

node beginning at the second node and ending at the first node. The method also includes determining whether a node of at least the one alternate node has available capacity to allow information from the failed link to be rerouted. The method also includes executing a switch function at the node of the at least one alternate node traversed by the destination-to-source communication channel to allow source-to-destination information traffic flow from the first node to the second node along the alternate path defined by the destination-to-source communication channel. The method also includes switching the information traffic flow at the first node from the failed link to the alternate path when the destination-to-source communication channel is established at the first node.

As discussed in the specification, examples of the present invention enable the optical signals to be switched from the failed optical link to a source-to-destination protection path upon receipt of the link failure signal at the source node. Thus, examples of the present invention provide efficient and flexible routing within a network of protection fibers where there are multiple available routes in which the optical signal may travel. This routing may be less time consuming and more efficient and results in an improved recovery time for a failed link. Applicant respectfully submits that Badt fails to disclose or suggest all the features of any of the presently pending claims. Therefore, Badt fails to provide the critical and unobvious advantages discussed above.

Badt relates to a system and method for restrictive reuse of intact portions of failed paths. The origin and destination of nodes of a failed path, according to Badt, are

apprised of the portions of the path that remain intact by "reuse" messages sent from the nodes that are adjacent to the failure. The node identification of an intermediate node is appended to a field of the message such that as the reuse messages are propagated along the intact portions of the failed path, an accumulated list of nodes that are encountered by the messages passing from the custodial node to the origin, and the destination node are determined. Figure 19 of Badt describes a sub-network 40 having an origin node 42, tandem nodes 44 and 46, and a destination node 48. Badt describes that beginning at destination node 48, a return message flows in path 192 to tandem node 46 and on path 190 to tandem node 186. The return message flows on path 76 to origin node 42. A return message flows to origin node 42 from tandem node 186.

Applicant submits that Badt fails to disclose or suggest all the features of any of the presently pending claims. For example, applicant submits Badt fails to disclose or suggest determining whether a node of at least one alternate node has available capacity to allow information from a failed link to be rerouted. Badt describes establishing multiple alternate paths between an origin node and a destination node. Badt, however, fails to disclose or suggest determining which of the multiple alternate paths has available capacity to allow information to be rerouted. In fact, Badt fails to determine the available capacity of any of its alternate paths. Thus, applicant submits that Badt fails to disclose or suggest determining whether a node of at least one alternate node has available capacity to allow information from a failed link to be rerouted.

In contrast, claim 1 recites "determining whether a node of the at least one alternate node has available capacity to allow information from the failed link to be rerouted." Applicant respectfully submits that, for at least the reasons listed above, Badt fails to disclose or suggest at least these features of claims 1-3, 15-18 and 34. Applicant respectfully requests that the anticipation rejection of these claims be withdrawn.

Claims 36 and 37 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent No. 6,430,150 (Azuma et al.). The Office Action took the position that Azuma taught all the elements of claims 36 and 37. Applicant respectfully submits that Azuma fails to disclose or suggest all the features of any of the presently pending claims.

Claim 36, upon which claim 37 is dependent, is directed to a network node. The network node includes a port configured to receive information from a destination-to-source communication link. The network node also includes a control circuit that is operably connected to the port and configured to a cross-connect section. The cross-connect section operably is connected to the control circuit and is configured to direct network traffic flow between a first node and a second node. The control circuit is configured such that, upon receipt of the information from a destination-to-source communication link, the information identifying that a protection path or a failed link between the first and second node is to be established based on available capacity in the protection path. The control circuit causes the cross-connect section to execute a switch

function to allow source-to-destination information traffic flow along a path defined by the information received from destination-to-source communication channel.

Azuma relates to a communication node, restoration method and communication network. Azuma describes a telecommunication network wherein each node that receives information relating to the failure determines alternative paths for bypassing the failure. Azuma also describes a service being switched to the alternative paths. When a failure occurs, restoration is affected by transmitting information relating to the failure that has occurred through the network. Each node that receives the information relating to the failure determines alternative paths for bypassing the failure using the information relating to the failure, the physical topology information and the logical topology information. Service is switched to the alternative paths.

Applicant submits that Azuma fails to disclose or suggest all the features of any of the presently pending claims. For example, applicant submits that Azuma fails to disclose or suggest the control circuit being configured such that, upon receipt of information from a destination-to-source communication link, the information identifying that a protection path for a failed link between the first and the second node is established based on available capacity in the protection path. Azuma describes transmitting information relating to a failure throughout the network. A node then receives information to determine the alternative paths for bypassing the failure using information relating to the failure. Azuma fails to determine alternative paths based upon the available capacity in those paths. Thus, Azuma fails to disclose or suggest identifying

that a protection path for a failed link between a first and second node be established based on available capacity in the protection path.

In contrast, claim 36 recites "wherein the control circuit is configured such that, upon receipt of the information from a destination-to-source communication link, said information identifying that a protection path or a failed link between the first and second node is to be established based on available capacity and the protection path." Applicant respectfully submits, for the reasons given above, that Azuma fails to disclose or suggest at least these features of claims 36 and 37. Thus, applicant respectfully requests that the anticipation rejection of these claims be withdrawn.

Claims 4-14 and 19-33 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Badt in view of Azuma. The Office Action took the position that Badt taught all the elements for Claims 4-14 and 19-33 except for optically switching the wavelengths of one or more of the optical signals of the failed link onto optical fibers establishing the alternate path. The Office Action then alleged that Azuma taught those elements of the claims missing from Badt. Applicant respectfully submits that Badt and Azuma, either alone or in combination, fail to disclose or suggest all the features of any of the presently pending claims.

Claim 4, upon which claim 5 is dependent, is dependant upon claim 3 that is dependant upon claim 2, which in turn is dependant upon claim 1. Claim 1 is summarized above. Applicant submits that claim 4 includes the features of claim 1.

Claim 6, upon which claim 7 is dependent, is dependant upon claim 3, which is dependant upon claim 2, which in turn is dependant upon claim 1. Claim 1 is summarized above. Applicant submits that claim 6 includes the features of claim 1.

Claim 8 depends directly from claim 1. Claim 1 is summarized above. Applicant submits that claim 8 includes the features of claim 1.

Claim 9, upon which claims 10-12 are dependant, is directly dependant on claim 1. Claim 1 is summarized above. Applicant submits that claim 9 includes the features of claim 1.

Claim 13, upon which claim 14 is dependant, depends directly from claim 1. Claim 1 is summarized above. Applicant submits that claim 13 includes features of claim 1.

Claim 19, upon claim 20 is dependant, depends directly from claim 1. Claim 1 is summarized above. Applicant submits that claim 19 includes the features of claim 1.

Claim 21 depends directly from claim 1. Claim 1 is summarized above. Applicant submits that claim 21 includes the features of claim 1.

Claim 22, upon which claims 23-31 are dependant, is directed to a network protection configuration for use in optical mesh network topologies to reroute optical signals from a failed transmission path to one or more alternate transmission paths. The network protection configuration includes an optical fiber network including a plurality of optical network nodes each coupled to transmit or receive optical signals carried on distinct wavelengths on optical fibers of the optical fiber network. The optical network

also includes a source node attempting to transmit the optical signals via the failed transmission path and a destination node detecting a failure transmission path. The network protection configuration also includes a communication channel established from the destination node to the source node to transmit a path figure notification. A route established by the destination-to-source communication channel traversing one or more of the optical network nodes defines the alternate transmission path. The network nodes defining the alternate transmission path are switched based on available capacity to allow information from the failed transmission path to be rerouted in response to the path failed notification to facilitate source-to-destination transmission of the optical signals from the failed transmission path along the alternate path.

Claim 32 is directed to a network protection configuration for use and optical mesh network topologies to reroute optical signals from a failed transmission path to one or more alternate transmission paths. The network protection configuration includes an optical fiber network including a plurality of optical network nodes each coupled to transmit and receive optical signals carried on distinct wavelengths on optical fibers of the optical fiber network. Each of the plurality of optical network nodes includes a fiber crossed-connect circuit connected to receive one or more of the optical fibers of the optical fiber network and to switch the optical signals on the optical fibers to particular output ports of the fiber cross-connect to route the optical signals on the optical fibers to targeted optical fibers. Each of the plurality of optical network nodes also includes an optical cross-connect circuit coupled to receive one or more of the optical signals and to

switch the optical signal to particular output ports of the optical cross-connect to route the optical signals to targeted ones of the optical fibers. The network protection configuration also includes a destination-to-source communication channel established from the destination nodes detecting the failed transmission path to a source node to transmit a failed path notification. A route established by the destination-to-source communication channel traversing one or more of the optical network nodes defines the alternate transmission path based on the available capacity to allow information from the failed transmission to be rerouted. The fiber cross-connect and optical cross-connect circuits of the network nodes define the alternate transmission path that are switched in response to the failed path notification to facilitate source-to-destination transmission of the optical signals from the failed transmission path along the alternate path.

Claim 33 is directed to a method for establishing a protection path for a failed optical link between a source node and a destination node in an optical path WDM mesh network. A transfer of optical signals from the source node to the destination node is suspended by the failed optical link. The method includes detecting the failed optical link at the destination node by recognizing the loss of optical power at destination node cross-connect ports. The method also includes transmitting a link failure signal via a communication channel from the destination node detecting the failed link to the source node through at least one alternate node. The method also includes determining whether a node of the at least one alternate node has available capacity to allow the transmission of the suspended optical signals to be rerouted. The method also includes configuring a

cross-connect switch at each of the alternate nodes receiving a link failure signal, including cross-connecting input ports to output ports of the cross-connect switch such that a source-to-destination protection path for transmission of the suspended optical signals is established as the link failure signal is transmitted from the destination node to the source node. The method also includes switching the suspended optical signals from the failed optical link to the source-to-destination production path upon receipt of the link failure signal at the source node, whereby the source-to-destination production path is set up using a destination-to-source communication channel.

Applicant submits that Badt and Azuma, either alone or in combination, fail to disclose or suggest all of the features of any of the presently pending claims. For example, applicant submits that Badt and Azuma fail to disclose or suggest network nodes defining the alternate transmission path and being switched based on available capacity to allow information from a failed transmission path to be rerouted. As discussed above, Badt and Azuma fail to disclose or suggest determining whether a node of at least one alternate node has available capacity to allow information from the failed link to be rerouted. Applicant submits that Badt and Azuma also fail to determine available capacity to allow information to be rerouted within configurations for use in optical network topologies. Badt determines its alternative paths using a maxflow algorithm at the origin node. Azuma determines alternative paths by using received information relating to a failure to bypass the failure. Badt and Azuma do not use available capacity in establishing or determining alternate paths to a failure.

In contrast, claim 22 recites "the network nodes defining the alternate transmission paths are switched based on the available capacity to allow information from the failed transmission path to be rerouted in response to the path failure notification to facilitate source-to-destination transmission of the optical signals from the failed transmission path along the alternate path." Claim 32 recites "wherein a route established by the destination-to-source communication channel traversing one or more of the optical network nodes defines the alternate transmission path based on the available capacity to allow information from the failed transmission path to be rerouted." Claim 33 recites "determining whether a node of the at least one alternate node has available capacity to allow transmission of the suspended optical signals to be rerouted." Applicant submits, for at least the reasons given above, that Badt and Azuma fail to disclose and suggest at least these features of the presently pending claims.

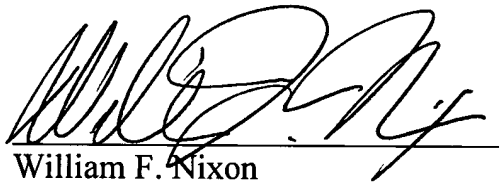
With regard to the dependant claims, applicant submits that these claims are allowable for at least the reasons given above, and because the dependant claims recite additional patentable subject matter. Therefore, applicant respectfully submits that Badt and Azuma, either alone or in combination, fail to disclose and suggest all the features of claims 4-14 and 19-33. Applicant respectfully requests that the obvious rejection of these claims be withdrawn.

Applicant further submits that each of the claims 1-37 recites subject matter that is neither disclosed nor suggested by Badt and Azuma. Applicant therefore respectfully requests that all of claims 1-37 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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